

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of
Akihiko UEDA et al.

Docket No: Q91902

Appln. No.: 10/559,810

Group Art Unit: 1794

Confirmation No.: 7403

Examiner: Hu S. Henrys

Filed: May 12, 2006

For: MASONRY-TREATING AGENT

DECLARATION UNDER 37 C.F.R. § 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Akihiko UEDA, hereby declare and state:

THAT I am a citizen of Japan;

THAT I have received the master degree of polymer chemistry in 1986 from
University of Osaka Prefecture;

THAT I have been employed by DAIKIN INDUSTRIES LTD. since April 1,
1986, and been in charge of the research and development of fluorinated chemicals
; and

THAT I am familiar with the Office Action dated October 16, 2008.

I report below on certain experimentation that was conduct by me or under my
direct supervision.

EXPERIMENTATION

In the following Examples, a soil resistance test was conducted as follows:

A soil was put on a treated substrate, and droplets were left for 24 hours and wiped off with a paper towel. The evaluation was conducted according to the following criteria.

- 1 : Deep stain, and broad oil droplet spread
- 2 : Deep stain, and slight or no oil droplet spread
- 3 : Medium stain, and no spread
- 4: Slight stain
- 5: No stain.

Example A

Into a 200 cc four-necked flask equipped with a stirrer, an inert gas inlet, a condenser and a thermometer, 13.0 g of $\text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CH}_2\text{CH}_2\text{OCOCCH}=\text{CH}_2$, 6.5 g of stearyl acrylate, 0.5 g of γ -methacryloxypropyltrimethoxysilane (SZ6030 manufactured by Dow Corning Toray Co., Ltd.) and 113.3 g of tetrachlorohexafluorobutane (S-316 manufactured by Daikin Industries, Ltd.) were charged and heated to 60°C. A solution of t-butyl peroxyphthalate (1.5 g) (PERBUTYL PV manufactured by NOF Corp.) in trichloroethane (7.3 g) was added and the polymerization reaction was conducted with stirring at 60°C for at least 12 hours. A gas chromatography revealed that a polymerization reaction conversion was at least 97%. The resultant polymer solution was diluted with butyl acetate to give a treatment liquid having a solid content of 3 %.

A surface of each of polished natural granite (mined in China, and purchased from Nittai Kogyo Kabushiki-Kaisha) and limestone (purchased from Inax Corp.) was coated with the treatment liquid (1 mL of the treatment liquid was applied to an area of 5 cm x 10 cm). After left at room temperature for 10 minutes, a superfluous treatment liquid was wiped off. After left at room temperature for 24 hours, the soil resistance test was conducted. The results are shown in Table 1 (granite) and Table 2 (limestone).

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Example B

The polymerization reaction was conducted to give a polymer solution in the same procedure as in Example A except that $\text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CH}_2\text{CH}_2\text{OCOC}\equiv\text{CH}_2$ was changed to $\text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CH}_2\text{CH}_2\text{OCOC}\equiv\text{CH}_2$. In the same manner as in Example A, the polymer solution was diluted with butyl acetate to adjust the solid concentration to 3%, the treatment was conducted and the soil resistance test was conducted. The results are shown in Table 1 and Table 2.

Table 1 Soil resistance test (granite)

	Olive Oil	Waste oil	Red wine	Coffee
Example A	5	5	4	5
Example B	5	5	5	5

Table 2 Soil resistance test (limestone)

	Olive Oil	Waste oil	Red wine	Coffee
Example A	5	4	4	5
Example B	5	5	5	5

Example A is the same as Example 1 of the present Description.

In Example A, the Rf group in the fluorine-containing monomer has 4 carbon atoms. In Example B, the Rf group in the fluorine-containing monomer has 6 carbon atoms.

The fluorine-containing monomer wherein the Rf group has 6 carbon atoms can give excellent soil resistance as in the fluorine-containing monomer wherein the Rf group has 4 carbon atoms.

Experiment for the fluorine-containing monomer wherein the Rf group has 8 carbon atoms has not been made. The fluorine-containing monomer wherein the Rf group has 8 carbon atoms may give a danger to burden the environment. That is, the fluorine-containing monomer can produce PFOA (perfluorooctanoic acid) which has a danger to burden the environment.

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I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: January 19, 2009

Akihiko Ueda
Akihiko UEDA